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EXAMINER

PATEL, GAUTAM

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,714

Applicant(s)

NISHIWAKI ET AL.

Examiner

Gautam R. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/8/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-9 are pending for the examination.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119(a)-(d), which papers have been placed of record in the file.

Drawings/Objection

3. The drawings are objected for following reasons:

The drawings are objected to under 37 C.F.R. § 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “ four quadrants Ak, four regions Bk of photodetectors and sections of first order diffracted lights a2, a3, a2' a3, bk, a1, a4, b1 b4' and detected signal Ck ”; also “a first radiation light source and a second radiation light source” must be shown or the features cancelled from the claims.

No new matter should be entered.

Figure(s) 1 is/are not designated by a legend such as "Prior Art". The legend is necessary in order to clarify what applicant's invention is (see MPEP § 608.02g).

NOTE: Since fig. 9 is designated and described as prior art and there is not difference between fig. 1 and fig. 9; fig. 1 should also be designated as prior art.

Applicant is required to submit a proposed drawing correction in response to this Office Action. Any proposal by the applicant for amendment of the drawings to cure defects must consist of following:

Drawing changes must be made by presenting replacement figures which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments, or remarks, section of the amendment, and may be ***accompanied by a marked-up copy of one or more of the figures being amended, with annotations***. Any replacement drawing sheet ***must be identified in the top margin as “Replacement Sheet”*** and include all of the figures appearing on the immediate prior version of the sheet, even though only one figure may be amended. ***Any marked-up (annotated) copy showing changes must be labeled “Annotated Marked-up Drawings” and accompany the replacement sheet in the amendment (e.g., as an appendix).***

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a proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. Correction is/are required.

Correction may not be held in abeyance.

Specification

4. The disclosure is objected for following reasons.

The title of the invention is neither precise nor descriptive. A new title is required which should include, using twenty words or fewer, claimed features that differentiate the invention from the Prior Art. It is recommended that the title should reflect the gist of or the improvement of the present invention.

Correction is required.

Claim Rejections - 35 U.S.C. § 112

5. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claim 1-7, four quadrants Ak, four regions Bk of photodetectors and sections of first order diffracted lights a2, a3, a2' a3, bk, a1, a4, b1 b4' and detected signal Ck and required by the claims are not clearly described in the specification.

Specification page 5 lines 29-27 talks about Ak, but does NOT describe it in the drawings which quadrant is located where. Also specification does not show how first order diffracted lights ak are derived from the light that has entered the quadrants Ak by optical splitter and are projected on the regions Bk. Since region Bk is neither defined nor shown at all in the drawings, it is not clear at all what is being done to what. And how these things are related to each other.

Accordingly, the specification does not explain to one of ordinary skill in the art at the time of the invention, how to make and or use the invention comprising the claimed " four quadrants Ak, four regions Bk of photodetectors and sections of first order diffracted lights a2, a3, a2' a3, bk, a1, a4, b1 b4' and detected signal Ck ".

As to claims 8-9; a first radiation light source and a second radiation light source with two different wavelengths are only described in paragraph 25. However there is NO mention of these TWO light sources in the detailed description at all or shown in the drawings. As a matter of fact detailed description only discloses first and second beams [1a and 1a']. It seems both beams 1a and 1a' are coming out of a SINGLE light source "1", and NOT two light sources as described [but not shown] in paragraph 25. it also not clear how a single diode [light source] is producing two beams of different wavelengths. And light source 1 is neither defined as a module or an integrated light source. One of ordinary skill in the art would not have been able to understand if there two light sources or there is a single light source. And if there is a single light source [single diode] how it is producing two beams. It seems there are TWO different definitions of these light sources or beams in two different places [25 and 89] in the specification.

7. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 9-20 are confusing and unclear. It is not clear at all what quadrants are defined as Ak and which regions of photodetectors are Bk and how lights a2 and a3 [not shown] falls where.

Similarly two definitions of light sources or beams in two paragraphs [25 and 89], with respect to claims 8-9.

Claim Rejections - 35 U.S.C. § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if

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the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 are rejected under 35 U.S.C. § 102(e) as being anticipated by AAPA [Applicants Admitted Prior Art] (hereafter AAPA).

As to claim 1, AAPA discloses the invention as claimed, an optical disk device [see Figs. 9-10] including a radiation light source, an objective lens, an optical splitter, and a photodetector, comprising:

a radiation light source [fig. 9, unit 1], an objective lens [fig. 9, unit 1], an optical splitter [fig. 9, unit 2], and a photodetector [fig. 9, unit 9], wherein light emitted from the radiation light source passes through the objective lens to be focused on a signal plane of an optical disk [fig. 9, unit 6]; light reflected by the signal plane passes through the objective lens to enter the optical splitter; the optical splitter is divided into four quadrants A_k (wherein $k=1, 2, 3, 4$) by two straight lines (a y-axis parallel with an optical disk radial direction and an x-axis orthogonal thereto) that intersect with an optical axis; the photodetector is divided into at least four regions B_k ; first-order diffracted lights a_k are derived from light that has entered the quadrants A_k by the optical splitter and are projected on the regions B_k of the photodetector, respectively; sections of the first-order diffracted lights a_2 and a_3 taken along the x-axis lie approximately on a boundary between the regions B_2 and B_3 ; and the first-order diffracted lights a_1 and a_4 are distributed on the photodetector apart from each other [pages 1-5; specification].

9. The aforementioned claim 2, recites the following elements, inter alia, disclosed in AAPA:

a tracking error signal TE with respect to the optical disk is generated according to a formula of $TE = C1 - C4 - (C2 - C3)/m$, where C_k denotes a signal detected in the region B_k (wherein $k=1, 2, 3$, or 4), and m indicates a value of 1 or higher [pages 1-5; specification].

10. The aforementioned claim 3, recites the following elements, inter alia, disclosed in AAPA:

minus first-order diffracted lights a_k' (wherein $k=1, 2, 3, 4$) are derived from light that has entered the quadrants A_k by the optical splitter, the minus first-order diffracted light a_2' is

focused on a detection plane without being inverted with respect to a substantial y-axis direction, and the minus first-order diffracted light a_3' is inverted with respect to the substantial y-axis direction to be focused on the detection plane [pages 1-5; specification].

11. The aforementioned claim 4, recites the following elements, inter alia, disclosed in AAPA:

a first radiation light source, a second radiation light source, an objective lens, an optical splitter, and a photodetector, wherein the first and second radiation light sources are disposed on the photodetector; light emitted from the first radiation light source passes through the objective lens to be focused on a signal plane of a first optical disk; light reflected by the signal plane passes through the objective lens to enter the optical splitter; the optical splitter is divided into four quadrants A_k (wherein $k=1, 2, 3, 4$) by two straight lines (y-axis parallel with an optical disk radial direction and an x-axis orthogonal thereto) that intersect with an optical axis; the photodetector is divided into at least four regions B_k ; first-order diffracted lights a_k are derived from light that has entered the quadrants A_k by the optical splitter and are projected on the regions B_k of the photodetector, respectively; light that is emitted from the second radiation light source and has a different wavelength from that of the light emitted from the first radiation light source passes through the objective lens to be focused on a signal plane of a second optical disk; and light reflected by the signal plane of the second optical disk passes through the objective lens to enter the optical splitter, and first-order diffracted lights b_k are derived from light that has entered the quadrants A_k by the optical splitter and are projected on the regions B_k of the photodetector, respectively. [pages 1-5; specification].

12. The aforementioned claim 5, recites the following elements, inter alia, disclosed in AAPA:

sections of the first-order diffracted lights a_2 and a_3 , or b_2 and b_3 taken along the x-axis lie approximately on a boundary between the regions B_2 and B_3 , and the first-order diffracted lights a_1 and a_4 , or b_1 and b_4 are distributed on the photodetector apart from each other. [pages 1-5; specification].

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13. The aforementioned claim 6, recites the following elements, inter alia, disclosed in AAPA:

a tracking error signal TE with respect to the first or second optical disk is generated according to a formula of $TE = C1 - C4 - (C2 - C3)/m$, where C_k denotes a signal detected in the region B_k (wherein $k=1, 2, 3$, or 4), and m indicates a value of 1 or higher. [pages 1-5; specification].

14. The aforementioned claim 7, recites the following elements, inter alia, disclosed in AAPA:

minus first-order diffracted lights ak' or bk' (wherein $k=1, 2, 3, 4$) are derived from light that has entered the quadrants A_k by the optical splitter, the minus first-order diffracted light $a2'$ or $b2'$ is focused on a detection plane without being inverted with respect to a substantial y-axis direction, and the minus first-order diffracted light $a3'$ or $b3'$ is inverted with respect to the substantial y-axis direction to be focused on the detection plane. [pages 1-5; specification].

15. A search based on the best understanding of the claims has been made to find the most pertinent art, but no statement about invention will be appropriate at this time regarding the allowableness of claims 8-9 and no art rejection will be made in this office action regarding the claims 8-9, due to the speculation required to interpret the claims because of their indefiniteness under 35 U.S.C. 112, 1st and 2nd paragraphs as noted above (see *In re Steele*, 134 USPQ 292).

Important Notes

16. NOTE: The Applicants are invited to call the Examiner to discuss potential allowable subject matter.

Other prior art cited

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Tsuchiya et al. (US. Patent 5793734).

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- b) Kimura et al. (US. patent 6765935).
- c) Nishimura (US. patent 4967072)
- d) Carney et al. (US. patent 4577321)
- e) Takeda et al. (US. patent 6016300)
- f) Yamanaka (US. patent 6424436)

Contact information

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is 571-272-7625. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Dwayne Bost, who can be reached on (571) 272-7023.

Any inquiry of a general nature or relating to the status of this application should be directed to the Electronic Business Center whose telephone number is 866-217-9197 or the USPTO contact Center telephone number is (800) PTO-9199.

GAUTAM R. PATEL
PRIMARY EXAMINER



Gautam R. Patel
Primary Examiner
Group Art Unit 2627

June 15, 2006